Section 4: Current Efficiencies

The Task Force members felt that it was important to understand the types of efficiencies, reforms, and best practices currently being implemented before any real discussion of increased investment begins. What they learned was that there are many operational efficiencies and reforms being implemented every day by transportation agencies across the state.

In order to maximize the delivery of services and programs with limited revenue, transportation agencies – including the state, county road commissions, municipalities, local transit agencies, airport authorities, and others – have continually worked to be more efficient. Often this effort is transparent, that is the people who use the transportation system do not notice the budget-cutting measures being taken, because service continues without interruption.

The following examples are just a few of the biggest, most comprehensive examples of reform and efficiency taking place. For a complete list of all efficiencies, reforms, and best practices currently being implemented across the state, click on "View Final Report" at the Web site of the Transportation Funding Task Force at www.michigan.gov/tf2.

Asset Management

One of the most effective reforms in Michigan has been the implementation of asset management programs for all modes of transportation. Asset management is a data-driven, decision-making approach that helps ensure the appropriate investment is made at the right time to preserve the life of a physical asset.

Roads and Bridges: The creation of the Asset Management Council and implementation of asset management across road jurisdictions has been a ground-breaking effort. In order to provide a uniform data set, collection methods, etc., which are required to have a credible asset management program, extensive cooperation was required between road agencies and governments at all levels. Achieving this level of cooperation was historic and unprecedented. Never have so many road agencies, municipalities, metropolitan planning organizations, and MDOT worked so closely together for such an extended time to create a universally applicable system that is shared by all agencies with road jurisdiction in the state.

Transit: Asset management practices are also used for passenger transportation assets. Some transit agencies have extensive vehicle rehabilitation programs to extend the service life of vehicles beyond the dates when federal funds could be used for vehicle replacement. In Genesee County, the mid-life rehabilitation of transit buses extended the life of the buses by 12 to 20 years. This allows the transit agency to focus federal funds on other capital needs or operational expenses (when possible). In addition, MDOT uses asset management principles to allocate available federal funds for replacement of rural transit vehicles, to extend the life of vehicles, and to maximize the limited funding available for capital improvements.

Airports: MDOT developed two important tools to help manage aviation assets: the Airport Pavement Management System (APMS) and the Michigan Airport System Plan (MASP). The APMS allows MDOT to objectively quantify the condition of airport runway and taxiway pavements, monitor airport pavement condition, identify cost-effective maintenance and

repairs to extend the life of the pavement, and track performance. The MASP greatly increases MDOT's efficiency in planning projects by categorizing airports in a tier-based prioritization system that focuses investment where it will have the most benefit. In combination, these tools help ensure the maximum return on dollars invested in airport infrastructure.

Inter-Agency Cooperation

There are many examples of transportation agencies working cooperatively with each other, or with the private sector, to improve service, infrastructure, or reduce costs. The arrangements can be formal or informal, program-wide or project-specific, large or small, but inevitably they stretch taxpayer dollars or improve service. Here are just a few:

The Southeastern Michigan Snow and Ice Management project (SEMSIM): SEMSIM was the first project of its kind in the nation. The four largest local road agencies in the state, as well as the regional public transportation service, joined forces to introduce cutting-edge winter road maintenance fleet-management technology. One of the major factors that made this project so unique is the unprecedented inter-jurisdictional cooperation involved. The project greatly improved communications between the partner agencies and led to many instances of additional cooperation unrelated to SEMSIM. The end result is that through SEMSIM, as well as the additional level of inter-agency cooperation, there is now improved effectiveness and efficiency in the delivery of winter maintenance service and improved public safety across the region. The SEMSIM partner agencies are: the Road Commission for Oakland County, the Wayne County Department of Public Services, the Road Commission of Macomb County, the City of Detroit Department of Public Works, and the Southeast Michigan Authority for Regional Transportation (SMART).

MDOT Partnering with Meijer for Carpool Lots: In October of 2008, MDOT announced an agreement with the Meijer chain of stores, in which Meijer will allow MDOT to use sections of its parking lots at six stores as additional carpool lots. The agreement allows MDOT to significantly expand its carpool lot program at minimal cost to the agency. Expanding this program was identified as a major goal for increasing the opportunity for motorists to carpool, and thereby reduce the number of single occupant vehicles on the roads. Similar agreements could be reached with additional Meijer stores the in coming months and years.

Southeast Michigan Council of Governments (SEMCOG) Traffic Volume Data Collection: SEMCOG maintains a public database of traffic volume counts on nearly all roads in its region. At least one road commission in the region that used to maintain its own such database now simply provides data to SEMCOG, saving the cost of maintaining a separate database, and making this information readily available to a much larger segment of the public.

Pavement Management: Grand Valley Metro Council (GVMC): A cooperative pavement management effort is being undertaken by the GVMC that serves the counties of Allegan, Barry, Ionia, Kent, Montcalm, and Ottawa. The members of the GVMC, through the council, collectively purchased a specialized pavement management vehicle in 2006. The specially equipped vehicle is a new, advanced-technology tool used to gather data on pavement conditions. This data helps local and state officials make better decisions about road repairs and reconstruction. The full-sized van is equipped with state-of-the-art electronic pavement scanners, high-resolution still cameras, Global Positioning System (GPS) components, and computers. Operated by experienced transportation planners from GVMC's Transportation Department, the equipment is used throughout the GVMC area to ascertain pavement

conditions and enable all member road agencies to better manage roads, bridges, and other elements of the region's transportation network. Because of the cost of such a technologically advanced vehicle, none of the member counties or communities could have purchased the vehicle on its own.

Regional Transit Services: The regionalization of transit services has resulted in greater cooperation within and across agency jurisdictional boundaries. The Detroit Department of Transportation (DDOT) and SMART have streamlined routes and service delivery between them. In Kent County, Ingham County, Genesee County, and other areas, university services, student transportation services, and other mobility options have been broadened. The City of Kalamazoo's Metro Transit and Kalamazoo County's Care-A-Van transit service initiated a merger of the two systems to provide a single provider for the entire county. The Bay Metropolitan Transit Authority, Saginaw Transit Authority Regional Services, City of Midland Dial-A-Ride, and Midland County succeeded in coordinating existing services to enable passengers to easily travel by public transit among the four jurisdictions. The Straits Regional Ride, which began under an MDOT-funded regional demonstration project, successfully transitioned to transit agency status and is now a recipient of local bus operating formula funds, serving Cheboygan, Emmet, Otsego, and Presque Isle counties.

Technology

The benefit of technology to productivity and efficiency is undeniable and the examples are many. While the cost of some technology may be prohibitive to smaller agencies, larger agencies have been able to realize genuine savings and sustained cost-savings that more than justify the initial startup costs. A few examples follow:

Intelligent Transportation Systems (ITS): MDOT is a national leader in ITS, a concept strongly supported by the FHWA as one of the best ways to make road systems more efficient. MDOT's ITS system includes freeway changeable-message signs, electronic traffic monitors (cameras, traffic counters, etc.), "adaptive" traffic signals, and much more. At the local level, the Road Commission for Oakland County (RCOC) has been a leader in transportation technology for nearly 20 years. Today, RCOC operates the second-largest system of adaptive traffic signals in the nation and the largest system of video-imaging vehicle detection in the world. Across the border in Macomb County, the Road Commission for Macomb County (RCMC) is rapidly expanding its system of adaptive traffic signals as well. The FHWA and countless experts in the field, report that adaptive traffic signal systems, which adjust signals based on the traffic flow and volumes present at any moment, are one of the most cost-effective ways to increase road capacity, sometimes accomplishing the same goals as road widening at a fraction of the cost.

Geographic Information Systems (GIS): Many larger transportation agencies have also utilized GIS to increase efficiency. GIS allows geographic data and digital maps to be used in operational analysis at the user's computer. At RCOC, for example, the database allows employees to view transportation-related data, such as the road centerline, right-of-way, aerial photos, and topography directly from their desk. To increase productivity, a Web-based mapping system has been deployed which allows access to the maps from any Internet-enabled location. This system allows staff to conduct preliminary site research at their desks without the need of making costly and time consuming field visits.

RCOC was able to mitigate the initial startup costs of the system by partnering with the Oakland County Information Technology Department (OCIT), which already had vast infrastructure and data resources in place. An interagency agreement provides a two-way

data sharing agreement that lowers cost for data collection for both agencies through equipment sharing and technical training. Furthermore, the road commission uses OCIT staff to make updates to the system at a cost which is typically one-third of a private consultant. Further agency cooperation takes place between the road commission's Department of Permits and Environmental Concerns and the Oakland County Drain Commission. The two departments cooperate in locating and mapping drainage outfalls throughout the county.

Global Positioning Systems (GPS): An increasing number of Michigan road agencies are turning to GPS to enhance operational efficiency. In some cases, GPS is used to track agency vehicles. In other cases, agencies have required some companies they contract with to equip their vehicles with GPS so the agencies can better monitor the work of the contractors. In both cases, this technological advancement is providing road agencies with significantly enhanced information that allows them to better manage their resources.

Transit Technology: There are a variety of new technologies available to improve the efficiency of passenger transportation systems. Some transit agencies have implemented computerized dispatching systems to improve efficiencies in dispatching demand response vehicles. The Flint Mass Transportation Authority improved transit services through the use of Automatic Vehicle Locator Systems, Interactive Voice Response system, and Mobile Data Terminals. The Ann Arbor Transportation Authority has implemented real-time vehicle location information system called RideTrak via the internet and cell phones. The Rapid's ITS system will improve operational efficiency through real-time vehicle tracking, signal pre-emption, and automatic passenger counting. In addition, the Rapid's ITS system will also improve customer satisfaction by producing more accurate timetables and automatic stop announcements based on GPS technology. Many transit agencies also offer or are experimenting with new innovative fare cards. Providing passengers an attractive option for prepaying their bus fare allows for faster boarding times and decreases the effort of managing cash and change at the end of the day. SMART is experimenting with rechargeable, contract-free, smart-card that allow for even faster boarding and more convenient monthly payment options.

Traffic Signals: Another example in which road agencies are working together to eliminate redundancy and create efficiencies is in the area of traffic signal management. Traffic signals require the highly specialized skills of engineers and electricians to ensure they operate optimally and correctly, and that repairs are made properly and in a timely manner. Because there are often state, county, and city or village signals in close proximity, in some cases it would be redundant for each of these agencies to have specialized staff and equipment dedicated to maintaining them. When jurisdictions cooperate with each other to maintain traffic signals, great economies of scale are achieved by allowing all the signal maintenance expertise and highly specialized equipment to reside with a single agency. For example, the City of Grand Rapids maintains city traffic signals, all MDOT and Kent County Road Commission signals in the county, and some county and state signals in Ottawa County. In Oakland County, the RCOC maintains its own signals, all MDOT signals in the county, and most of the signals owned by cities and villages located within the county. In Eaton County, the county road commission contracts with the local electrical company, which already has the equipment required to maintain traffic signals.

Performance Measurement

All transportation agencies measure their performance in a variety of ways, from keeping safety statistics, assessing pavement or bridge condition, to evaluating on-time performance.

Since 1998, the Interurban Transit Partnership (The Rapid – Grand Rapids Metro Area) has been tracking system productivity by route in terms of farebox recovery, passengers per mile, passengers per hour, as well as average daily ridership. In 2002, fixed standards were established and approved by The Rapid's Board of Directors. Route performance is a key element in service decisions; the Board has used these reports to eliminate unproductive service and reassign the resources to areas with more demand.

The Rapid produces monthly ridership reports, and publishes a quarterly report card on their Web site that lists several key system statistics and assigns a green, yellow, or red light based on performance. Their performance, and the measurement process they use, is highly transparent to the public they serve.

All Michigan transit agencies submit data to MDOT that allows each agency (and their board and local residents) to review their performance over time and to review their performance in comparison to other Michigan transit agencies. For urban transit systems, similar data is submitted to the federal government, such that Michigan transit agencies can compare themselves to peers around the country. The tools are readily available to local boards and local voters to establish appropriate performance standards for their transit systems and hold them accountable for their performance.

Purchasing Consortiums

One way agencies have worked to become more efficient is by forming purchasing consortiums to achieve economies of scale to receive reduced or volume pricing.

Michigan Delivering Extended Agreements Locally (MiDEAL): This partnership allows local units of government to benefit from the state's negotiating and purchasing power by permitting them to purchase through the state's contracts on the same terms and conditions and at the same prices as state government. Local governments benefit not only from the reduced costs of goods and services, but also from indirect savings related to writing specifications, researching industries, processing invitations to bid, recruiting a diverse pool of potential suppliers, and awarding contracts.

MiDEAL was authorized by the Michigan legislature and has been in existence since 1975. Membership is extended to any city, village, county, township, school district, intermediate school district, nonprofit hospital, institution of higher learning, and community or junior college in the state. Some of the most frequently used contracts include office supplies, janitorial products, carpet, pharmaceuticals, disposable paper, lawn and garden equipment, cell phone equipment and service, fuel oil, gasoline, tires, vehicles, hardware, tools, computers, furniture, and road salt. County road commissions, transit agencies, and governmentally-owned airports have all taken advantage of the savings offered through MiDEAL.

Alternative Energy Technologies

Many transportation agencies at all levels have recognized the benefit of going "green" by purchasing equipment or vehicles that reduce energy use and, in the long run, save money.

The Rapid Central Station, the main transfer center for the system, was the first LEED-certified transit facility in the nation. It uses a number of environmentally-friendly technologies, including a storm water management system, a "green" roof, low-VOC paints, adhesives, and recycled building materials. The Rapid currently has five hybrid electric buses in their fleet, with plans to purchase more for use on the bus rapid transit system. The Rapid conducts an energy audit that identifies several changes that could provide big returns, such as installing LED bulbs, motion sensor-controlled lighting, or reducing air leaks.

The Suburban Mobility Authority for Regional Transportation (SMART) implemented the "Bike on Buses" Program with approximately 100,000 bike rides per year to encourage alternative commuting opportunities in heavily congested southeast Michigan.

The Mass Transit Authority in Flint, in cooperation with Kettering University and Michigan State University, has been heavily involved in researching future public transportation energy sources, such as hydrogen fuel cell technology.

Many local transit authorities have purchased alternative fuel and hybrid electric buses resulting in lower fuel costs, higher vehicle fuel efficiency, and reductions in vehicle emissions. The Capital Area Transportation Authority was the first transit system in the state to add 40 foot diesel electric hybrid buses to their fleet. The Ann Arbor Transportation Authority now operates 20 hybrid-electric buses with seven additional buses on order, a higher percentage of their fleet than any urban operator in the nation. The Mass Transportation Authority in Flint has converted several buses in their fleet to hybrid buses to save on fuel costs and reduce harmful greenhouse emissions. The Bay Area Transportation Authority in Traverse City plans on purchasing ten electric hybrid buses in 2008 and construct an electric charging station powered by wind turbines. The new hybrid buses are 30 to 40 percent more fuel efficient than the older buses scheduled to be replaced.